

**CLAIM AMENDMENTS**

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. The status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

Claims 1 - 26 (Canceled).

1                   27. **(Previously Presented)** A method of imaging a portion of the aorta of  
2                   a patient using a magnetic resonance imaging system, the method comprising:  
3                   determining an arrival time of a test bolus in a region of interest;  
4                   correlating an administration of a magnetic resonance contrast agent with an  
5                   acquisition of magnetic resonance image data, including image data which is  
6                   representative of the center of k-space, using the arrival time of the test bolus;  
7                   administering the magnetic resonance contrast agent to the patient; and  
8                   acquiring the magnetic resonance image data using a 3D pulse sequence,  
9                   wherein the image data which is representative of the center of k-space is acquired  
10                  while the concentration of the contrast agent in the portion of the aorta is greater  
11                  than a concentration of the contrast agent in veins and background tissue adjacent  
12                  to the portion of the aorta.

1                   28. **(Previously Presented)** The method of claim 27 wherein acquiring  
2                   magnetic resonance image data further includes using a flip angle which is greater  
3                   than about 30° and less than or equal to about 90°.

1           29. **(Previously Presented)** The method of claim 27 wherein acquiring  
2 magnetic resonance image data further includes using a TR which is less than about  
3 10 milliseconds and a TE which is less than about 3 milliseconds.

1           30. **(Previously Presented)** The method of claim 27 wherein acquiring  
2 magnetic resonance image data further includes acquiring a substantial portion of  
3 the image data which is representative of the central portion of k-space while the  
4 patient suspends respiration.

1           31. **(Previously Presented)** The method of claim 27 further including  
2 correlating the acquisition of the image data which is representative of the center of  
3 k-space with the suspension of respiration by the patient.

1           32. **(Previously Presented)** The method of claim 27 further including  
2 imaging at least one renal artery of the patient by acquiring magnetic resonance  
3 image data, of a coronally oriented image volume including the renal artery wherein  
4 the image data being acquired while the concentration of the contrast agent in the  
5 renal artery is substantially greater than a concentration of the contrast agent in  
6 veins and background tissue adjacent to the artery.

1           33. **(Previously Presented)** The method of claim 27 further including  
2 imaging at least one renal artery of the patient by acquiring magnetic resonance  
3 image data including image data which is representative of the center of k-space  
4 while the concentration of the contrast agent in the renal artery is substantially

5 greater than a concentration of the contrast agent in veins and background tissue  
6 adjacent to the artery.

1 34. **(Currently Amended)** The method of claim 34 33 wherein imaging at  
2 least one renal artery of the patient further includes collecting 3D phase contrast  
3 images.

1 35. **(Previously Presented)** The method of claim 27 wherein the image  
2 volume of the 3D pulse sequence includes at least one dimension which is greater  
3 than 25 cm.

1 36. **(Previously Presented)** The method of claim 27 further including:  
2 collecting image data of a pre-contrast image data set including collecting  
3 image data before administering a substantial amount of the magnetic resonance  
4 contrast agent to the patient; and  
5 constructing an image of the portion of the aorta by subtracting the image  
6 data of the pre-contrast image data set from the image data acquired while the  
7 concentration of the contrast agent in the portion of the aorta is greater than a  
8 concentration of the contrast agent in veins and background tissue adjacent to the  
9 portion of the aorta.

1 37. **(Previously Presented)** The method of claim 27 further including  
2 acquiring image data of the periphery of k-space while the concentration of the

3 contrast agent in the aorta is greater than a concentration of the contrast agent in  
4 veins and background tissue adjacent to the aorta.

1 38. **(Previously Presented)** A method of imaging an artery of a patient  
2 using a magnetic resonance imaging system, the method comprising:

3 determining an arrival time of a magnetic resonance contrast agent in a  
4 region of interest wherein the region of interest includes the artery;

5 correlating an injection of the magnetic resonance contrast agent to the  
6 patient with a collection of magnetic resonance image data using the arrival time of  
7 the magnetic resonance contrast agent in the region of interest;

8 injecting the magnetic resonance contrast agent to the patient; and

9 collecting the magnetic resonance image data using a 3D pulse sequence,  
10 wherein collecting magnetic resonance image data includes collecting a substantial  
11 portion of the image data while the concentration of the contrast agent in the artery  
12 is greater than a concentration of the contrast agent in veins and background tissue  
13 adjacent to the artery.

1 39. **(Previously Presented)** The method of claim 38 wherein the arrival  
2 time of the magnetic resonance contrast agent is an estimated arrival time.

1 40. **(Previously Presented)** The method of claim 38 further including  
2 correlating collection of magnetic resonance image data which is representative of  
3 the center of k-space with the arrival time of the contrast agent in the region of  
4 interest.

1           **41. (Currently Amended)** The method of claim 38 wherein determining the  
2 arrival time of a magnetic resonance contrast agent in the region of interest includes  
3 using an arrival time of a test bolus.

1           **42. (Previously Presented)** The method of claim 38 further including  
2 correlating the suspension of the respiration of the patient with the collecting  
3 magnetic resonance image data.

1           **43. (Previously Presented)** The method of claim 42 wherein correlating  
2 the suspension of the respiration of the patient with the collecting magnetic  
3 resonance image data includes collecting a substantial portion of the image data  
4 which is representative of the center of k-space while the patient suspends  
5 respiration.

1           **44. (Previously Presented)** The method of claim 42 wherein collecting  
2 magnetic resonance image data further includes using a TR which is less than about  
3 10 milliseconds, a TE which is less than about 7 milliseconds, and a flip angle which  
4 is between about 30° and about 90°.

1           **45. (Previously Presented)** The method of claim 38 further including  
2 imaging at least one renal artery of the patient by collecting image data which is  
3 representative of the center of k-space while the concentration of the contrast agent  
4 in the renal artery is greater than a concentration of the contrast agent in veins and  
5 background tissue adjacent to the artery.

1           46. **(Previously Presented)** The method of claim 38 wherein collecting  
2 magnetic resonance image data further includes using a slice thickness which is  
3 less than about 4 millimeters and the image volume of the 3D pulse sequence  
4 includes at least one dimension which is at least about 25 centimeters.

1           47. **(Previously Presented)** The method of claim 38 wherein collecting  
2 magnetic resonance image data further includes collecting image data of the  
3 periphery of k-space while the concentration of the contrast agent in the artery is  
4 greater than a concentration of the contrast agent in veins and background tissue  
5 adjacent to the artery.

1           48. **(Previously Presented)** The method of claim 38 wherein determining  
2 the arrival time of a magnetic resonance contrast agent in the region of interest  
3 includes estimating the arrival time based on the physical condition of the patient or  
4 the location of the artery in the patient.

1           49. **(Previously Presented)** A method of imaging an artery of a patient  
2 using a magnetic resonance imaging system, the method comprising:  
3           calculating an arrival time of the contrast agent in the region of interest;  
4           injecting a magnetic resonance contrast agent to the patient;  
5           correlating collection of magnetic resonance image data which is  
6 representative of the center of k-space with the injection of the magnetic resonance  
7 contrast agent using the arrival time of the contrast agent in the region of interest;

8 collecting magnetic resonance image data, including the image data which is  
9 representative of the center of k-space, using a 3D pulse sequence, wherein at least  
10 a portion of the image data is collected while the concentration of the contrast in the  
11 artery is greater than a concentration of the contrast agent in veins and background  
12 tissue adjacent to the artery.

1 50. **(Previously Presented)** The method of claim 49 wherein calculating  
2 the arrival time of the contrast agent in a region of interest includes using a test  
3 bolus.

1 51. **(Previously Presented)** The method of claim 49 wherein collecting  
2 magnetic resonance image data includes collecting a substantial portion of the  
3 image data while the patient suspends respiration.

1 52. **(Previously Presented)** The method of claim 49 wherein collecting  
2 magnetic resonance image data further includes using a TR which is less than about  
3 10 milliseconds.

1 53. **(Previously Presented)** The method of claim 49 further including  
2 imaging at least one renal artery of the patient by collecting magnetic resonance  
3 image data using a 3D pulse sequence, the image data being collected while the  
4 concentration of the contrast agent in the renal artery is greater than a concentration  
5 of the contrast agent in veins and background tissue adjacent to the renal artery.

1           54. **(Previously Presented)** The method of claim 49 wherein calculating  
2           the arrival time of a magnetic resonance contrast agent in the region of interest  
3           includes calculating the arrival time based on the physical condition or age of the  
4           patient.

1           55. **(Currently Amended)** The method of claim 49 further including  
2           instructing the patient to suspend respiration before while collecting the magnetic  
3           resonance image data which is representative of the center of k-space.

1           56. **(Previously Presented)** The method of claim 49 wherein collecting  
2           magnetic resonance image data includes collecting image data which is  
3           representative of the periphery of k-space immediately after collecting image data  
4           which is representative of the center of k-space.

1           57. **(NEW)** The method of claim 27 wherein calculating the arrival time of  
2           the contrast agent in a region of interest includes using an arrival time of a test  
3           bolus.

1           58. **(NEW)** The method of claim 38 further including instructing the patient  
2           to suspend respiration immediately before collecting the magnetic resonance image  
3           data which is representative of the center of k-space.



- 1                    59. **(NEW)** The method of claim 49 further including instructing the patient
- 2                    to suspend respiration immediately before collecting the magnetic resonance image
- 3                    data which is representative of the center of k-space.